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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/800,747	03/16/2004	Lijie Qiao	76855-30 /pw	1176

7380 7590 03/03/2006

SMART & BIGGAR
P.O. BOX 2999, STATION D
900-55 METCALFE STREET
OTTAWA, ON K1P5Y6
CANADA

EXAMINER	
BOLDA, ERIC L	

ART UNIT	PAPER NUMBER
3663	

DATE MAILED: 03/03/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/800,747	QIAO ET AL.	
	Examiner	Art Unit	
	Eric Bolda	3663	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *03 February 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-38* is/are pending in the application.

4a) Of the above claim(s) *24 and 28-32* is/are withdrawn from consideration.

5)☒ Claim(s) *33-38* is/are allowed.

6)☒ Claim(s) *1-8 and 10-22* is/are rejected.

7)☒ Claim(s) *9,23 and 25-27* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *26 March 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *3/16/2004*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1. Applicant's election without traverse of embodiment of Fig. 5 in the reply filed on Feb. 3, 2006 is acknowledged. The Examiner agrees that claim 1 is generic to both Fig. 4 and Fig. 5. Therefore, claims 1-23 will also be examined on the merits, as well as original claims 25-27, 33-37 and new claim 38 directed to the embodiment of Fig. 5.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claims 1-27 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. Claim 1 contains the method limitation "..wherein subsequent to each optical amplification media segment a respective one or more wavelengths in a respective wavelength range is dropped so as to exploit a gain versus optical amplification media physical length characteristic" but the specification only shows one way, optical add-drop multiplexing of successively higher wavelengths, of accomplishing this. The claim has a scope far greater than what a person of skill in the art would understand the inventor to possess or what a person of skill in the art would be enabled to make and use. There is not support for this broad a limitation in the specification. See In re

Mayhew, 527 F.2d 1229, 188 USPQ 356 (CCPA 1976), LizardTech, Inv. v. Earth Resource Mapping, 77 2d 1391 (CA FC 2006).

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 1-27 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The claims are indefinite because a person of skill in the art would not be apprised of the scope in view of the lack of enablement of the claims (see 35 U.S.C. 112, first paragraph, rejection above).

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

7. Claims 1-9, 10-13, 16 and 22 are rejected under 35 U.S.C. 102(b) as being anticipated by Srivistava (US Pat. 6,049,417). Srivistava discloses in Fig. 2 an optical amplifier comprising a plurality of optical amplification media segments (220)-(230). The

segments (220), (221)-(226) are in series, so are (220) and (227), as are (220) and (228)-(230).

The clause "so as to exploit a gain versus optical amplification media physical length characteristic" is essentially statements of intended or desired use. Thus, these claims as well as other statements of intended use do not serve to patentably distinguish the claimed structure over that of the reference. See In re Pearson, 181 USPQ 641; In re Yanush, 177 USPQ 705; In re Finsterwalder, 168 USPQ 530; In re Casey, 512 USPQ 235; In re Otto, 136 USPQ 458; Ex parte Masham, 2 USPQ 2nd 1647.

See MPEP § 2114 which states:

> A claim containing a "recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from the prior art apparatus" if the prior art apparatus teaches all the structural limitations of the claim. Ex parte Masham, 2 USPQ 2nd 1647
>
> Claims directed to apparatus must be distinguished from the prior art in terms of structure rather than functions. In re Danly, 120 USPQ 528, 531.
>
> Apparatus claims cover what a device is not what a device does. Hewlett-Packard Co. v. Bausch & Lomb Inc., 15 USPQ2d 1525, 1528.

Considering the operation of the optical amplifier of Srivistava when input with S-band, M-band, and L-band signal light, subsequent to the amplification segment (220), the M-band light goes through the amplification segment (227), while the other bands (S and L) are dropped. In this way the gain for the S-, M-, and L-bands are equalized, exploiting the gain versus fiber length characteristic. Note that since the claim is open ended (i. e. "An apparatus comprising.."), the fact that the signal bands are subsequently rejoined

with multiplexer (251), does not prevent the Srivistava reference from reading on the claim.

With regard to claim 2, the amplification segments are optical fibers.

With regard to claim 3, each optical fiber segment is chosen so as to equalize the gain over the total wavelength range.

With regard to claim 4, the wavelength range is S-band (1490 nm) to L-band (1620 nm).

With regard to claim 5, the wavelengths are on a standard telecommunications grid.

With regard to claims 6-8 and 10, 11, the wavelengths are spaced at 20 nm.

With regard to claims 12-13, the optical fibers are supplied with pump laser energy with at least one pump laser (244)-(247), via couplers (240)-(243).

With regard to claim 16, the amplifying optical fibers are erbium doped.

With regard to claim 22, Srivistava discloses an optical isolator (211), (212) after each amplifying medium

8. Claims 1, 2, 4, 5-8, 10-13, 16 and 21 are rejected under 35 U.S.C. 102(e) as being anticipated by Papaparaskeva et al. (US Pat. App. Pub. 2003/0118347). Papaparaskeva et al. disclose an optical transmission system comprising multiple optical amplification media segments (6a)-(6e), which are concatenated in series. Following each optical amplification media segment, one or more wavelengths in a wavelength range is dropped with an optical add-drop multiplexer (claim 5 of Papaparaskeva).

With regard to claim 2, the amplification segments are optical fibers.

With regard to claim 4, the wavelength range is S-band (1490 nm) to L-band (1620 nm).

With regard to claim 5, the wavelengths are on a standard telecommunications grid.

With regard to claims 6-8 and 10, 11, the frequencies are spaced at 25 GHz.

With regard to claims 12-13, the optical fibers are supplied with pump laser energy with at least one pump laser via couplers.

With regard to claim 16, the amplifying optical fibers are erbium doped.

With regard to claim 21, Papaparaskeva discloses optical power monitoring (claim 5).

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

10. Claims 14-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Srivistava or in the alternative, Papaparaskeva as applied to claims 1-8 and 10-13 above. With regard to claims 14-15, it is well-known that multiple doped fibers in series can be collectively supplied with energy by a single pump laser.

11. Claims 17-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Srivistava or in the alternative, Papaparaskeva as applied to claims 1-8 and 10-13 above, and further in view of Shimojoh (US Pat. No. 6,417,960).

With regard to claims 17-20, Srivistava or in the alternative, Papaparaskeva disclose all the features of the claims except a noise suppression filter. However, it is well-known to use a noise suppression filter such as that taught in Shimojoh in an optical transmission system for filtering ASE noise and flattening the gain of an optical amplifier.

Allowable Subject Matter

12. Claims 33-38 are allowed. Claims 9, 23, and 25-27 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter: the prior art does not disclose or make obvious, for each pair of adjacent amplifying media segments in a serial optical amplifier, a multi-port optical add-drop multiplexer between the segments, configured to receive an amplified signal and drop a signal,

passing the remaining signals to the next segment. This statement is not intended to necessarily state all the reasons for allowance or all the details why the claims are allowed and has not been written to specifically or impliedly state that all the reasons for allowance are set forth (MPEP 1302.14).

Information Disclosure Statement

13. The information disclosure statement filed on March 16, 2004 has been considered by the Examiner. However, the Examiner could not identify the two listed patents by Song et al. because the patent numbers did not agree with the inventor's names. These two patents were not considered.

Conclusion

14. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure: DeGrange et al., Kiliccote et al., Zhang et al., Kaspit et al., Nakamoto et al.

15. Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Eric Bolda whose telephone number is 571-272-8104. The examiner can normally be reached on M-F from 8:30am to 5pm.

If attempts to reach the examiner by telephone are unsuccessful, the Examiner's supervisor, Jack Keith, can be reached on 571-272-6878. Please note the fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for

published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

EB

Eric Bolda

JACK KEITH
SUPERVISORY PATENT EXAMINER